What is claimed is:

1. A method of screening for an agent that modulates the interaction of a first test protein linked to a DNA binding moiety and a second test protein linked to a transcriptional activation moiety, comprising co-encapsulating the agent with the first test protein and second test protein in a suitable microenvironment and determining the ability of the agent to modulate the interaction of the first test protein linked to a DNA binding moiety with the second test protein covalently linked to a transcriptional activation moiety, wherein the agent enhances or inhibits the expression of a detectable protein, and wherein the enhancement or inhibition is detected by FACS analysis.

2. The method of claim 1, wherein the agent is an enzyme or small molecule.

3. The method of claim 2, wherein the enzyme is selected from the group consisting of lipases, esterases, proteases, glycosidases, glycosyl transferases, phosphatases, kinases, mono- and dioxygenases, haloperoxidases, lignin peroxidases, diarylpropane peroxidases, epozide hydrolases, nitrile hydratases, nitrilases, transaminases, amidases, and acylases.

4. The method of claim 1, wherein the agent inhibits the activity of the first protein or the second protein.

5. The method of claim 1, wherein the agent enhances the activity of the first protein or the second protein.

6. The method of claim 1, wherein the agent is expressed from a recombinant cell co-encapsulated with the recombinant cell expressing the target protein and detectable marker.

7. The method of claim 6, wherein the recombinant cell is a eukaryotic cell.

8. The method of claim 6, wherein the recombinant cell is a prokaryotic cell.

9. The method of claim 1, wherein the micro-environment is a liposome, gel microdrop, bead, agarose, cell, ghost red blood cell or ghost macrophage.

10. The method of claim 9, wherein the liposomes are prepared from one or more phospholipids, glycolipids, steroids, alkyl phosphates or fatty acid esters.

11. The method of claim 10, wherein the phospholipids are selected from the group consisting of lecithin, sphingomyelin and dipalmitoyl.

12. The method of claim 10, wherein the steroids are selected from the group consisting of cholesterol, chlorestanol and lanosterol.

13. The method of claim 1, wherein the detectable marker is a fluorescent dye, a visible dye, a bioluminescent material, a chemiluminescent material, a radioactive material, or an enzymatic substrate.

14. The method of claim 13, wherein the bioluminescent material is green fluorescent protein (GFP) or red fluorescent protein (RFP).

15. The method of claim 13, wherein detection of the fluorescent dye or a visible dye is carried out by fluorometric or spectrophotometric measurement.